GPP 2020 | procurement for a low-carbon economy

Tender Compilation

Mainstreaming low-carbon procurement

Mainstreaming low-carbon procurement

GPP 2020 has demonstrated the huge energy and CO_2 savings which public authorities in Europe can make by procuring innovative, low carbon products, service and works.

Over the course of three years, more than 100 low-carbon tenders were implemented by over 40 public authorities in eight countries, resulting in calculated savings of over 900,000 tonnes of CO_2 equivalent and more than 145,000 tonnes of oil equivalent.

To put this in context, these savings amount to enough oil to fill 15 oil tankers. The carbon dioxide saved amounts to more than that produced by 184,000 households over the course of a year.

The GPP 2020 approach was to take energy and CO_2 reductions into account right from the start of the procurement process. An initial calculation showed decision makers and procurers the level of savings that could be achieved with a low carbon tender.

Once awarded, all contracts were monitored and their impact assessed by calculating how much energy and CO_2 was saved compared to either the solution chosen in the previous tender or a standard solution available on the market.

For almost all of the tenders that were published within the project, a tender model has been produced documenting the procurement approach that was taken, the criteria that were used and how the tender savings were calculated.

This collection provides an overview of all published tender models within the GPP 2020 project, as well as a more detailed selection of 11 tenders that show the full range of approaches taken across all partner regions

The 11 tenders were chosen on the basis of their impact, the amount saved in terms of CO_2 and oil equivalent, the innovativeness of the approach taken and the possibility for other public authorities to adapt and replicate the tenders in their own municipalities.

Case Study Selection

Supply of electricity from renewable sources
Central Procurement Office, Croatia.

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- 100% of electricity derives from renewable energy sources
- Environment protection improvement at state level
- Proof of market maturity for Croatia

Standard product = benchmark
- Electricity from conventional sources
- 133,682 t CO_2 emissions

GPP 2020 tender
- 100% green electricity
- 7,451 t CO_2 emissions

Results
- Reduction of 126,230 t CO_2 emissions (94%, for 2 years)

Contract tendered

- Approximate quantity of electric energy based on the estimated consumption for two years is 438,300,000 kWh.
- Tender for the electricity supply of all state bodies (ministries, agencies and offices) in more than 3,500 locations all over Croatia with at least 50% electricity from renewable sources.
- 2 year contract
- Total cost: 20.76 Million EUR (excluding VAT)

Image copyright: www.dreamstime.com

Procurement approach

Tendering followed the open procedure:

Electricity from renewable sources	
Technical specifications • 50% of electricity from renewable sources – mandatory requirement ***Verification***: Statement of the bidder that they shall supply minimum 50% of total required electricity from renewable sources	**Award criteria** / most economically advantageous tender (MEAT): • 95% for the price • 5% for a higher amount of electricity from renewable sources (with mandatory requirement of 50% from renewable sources)
Eligibility of bidders • The bidder/tenderer must prove that they have the appropriate permit from the national energy regulatory agency ***Verification***: The bidder/tenderer shall supply this permit in line with the Croatian Act on the Regulation of Energy Activities, the Energy Act and other acts regulating particular energy activities.	

Contract clauses

Upon completion of the contract, the selected bidder must provide a statement with supporting documentation to prove that the supplied green electricity is really from renewable sources.

Criteria development

The ambition of the public tender was to increase consumption and production of electricity from renewable sources and to prove that the Croatian market is developed and mature enough to provide renewable energy to such a widespread and large consumer.

Results

The primary motivation for this tender was to encourage producers and potential bidders to increase green energy production in order to increase positive impact on ecology and reduce the negative impact on global warming.

The selected bidder offered 100% of electricity from renewable sources. Therefore, the Low Carbon Solution in the following results = 100 % electricity from renewable sources.

Energy savings and CO_2 emission reductions were calculated based on GPP 2020 methodology. The results are as follows.

	CO_2e emissions	**Energy consumption**
Low Carbon Solution – 100% green electricity	3,726 t CO_2e/year	18,844 toe/year
„worst case“ – Conventional electricity	66,841 t CO_2e/year	18,844 toe/year
Annual savings	**63,115 t CO_2e/year**	**0 toe/year**
Total savings	**126,230 t CO_2e**	**0 toe**

Calculation basis

- The total amount of electricity purchased is 438,300,000 kWh.
- The emission factor for the electricity mix of Croatia was chosen 0.305 g CO_2/kWh.
- Total TOE remains the same as the total usage of energy remains on the same level.

Lessons learned

The National Action Plan for Green Public Procurement 2015-2017 with a view to 2020, which was accepted on August 26th 2015, predicted at least 50% of electricity would be procured from renewable sources. This procedure has proven that excellent results can be achieved with positive overall impact on environment and state economy.

This procedure is a large step for the Croatian government towards cleaner, renewable sources consumption and use for a healthy, safe and sustainable future. Energy service providers showed an excellent response to required conditions of procurement procedure which has proven to develop into a stable and grown market segment for Croatia.

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Case Study Selection

Energy efficient commercial dishwasher
Procurement Agency of the Federal Ministry of the Interior, Germany

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- Open tender using life time costing award criteria (operation efficiency)
- Significant reductions in electricity and hot water consumption, thereby reducing CO_2 emissions

Last tender (2006)
- 52.7 kW per h
- 716 t CO_2e per lifetime
- Hot water consumption: 360 litres per hour

GPP 2020 tender (2014)
- 25.5 kWh per h
- 346 t CO_2e per lifetime
- Hot water consumption: 165 litres per hour

Results
- 63 TOE energy savings (over 15 years)
- 369 t CO_2 savings (over 15 years)
- 54 % water reduction

Contract tendered

- Purchase and maintenance of a commercial dishwasher by the Procurement Agency of the Federal Ministry of the Interior, Germany.
- Total costs: about 70,000 € (purchase costs, excluding VAT)
- This tender falls under the *National Sustainability Strategy of the Federal German Republic*. It also implements the *Sustainability Action Plan* of the Federal German Government, which aims to put sustainability principles into practice and reduce greenhouse gas emissions.
- The purchase award decision was based on a life time cost calculation.

Image copyright: Tatiana Morozova, dreamstime

Procurement approach

Tendering followed the open procedure:

Commercial dishwasher with a basket-transportation system	
Technical specifications • Washing capacity: 140 dish baskets per hour • Machine meets requirements of DIN 10510 • Tender included maintenance services to ensure an optimum product lifetime • Technical add-ons to reduce water and electricity consumption were also requested as voluntary additions.	**Award criteria** Lowest price based on life time costs defined as: Purchase costs + Life time costs (15 years / 1,800 h operating hours per year – including costs for electricity, fresh water and waste water)

Contract clauses
- Repair and maintenance: Compliance with general law and local regulations, especially with regards to environmental and health aspects.
- Recycling of the old machine: Obligation to take back and recycle the old machine.
- Compliance with the Core Standards of the International Labour Organisation in the course of fulfilling the contract.

Criteria development

The technical specifications and award criteria were developed using a life time costing approach in order to include both environmental and economic aspects of the dishwasher. This was the first time a life time costing approach was used by Bescha and it achieved good results.

Results

	CO_2e emissions	Energy consumption
Low Carbon Solution	716 t CO_2e/15 years	59 toe/15 years
Last Tender	346 t CO_2e/15 years	122 toe/15 years
Savings	**369 t CO_2e/15 years**	**63 toe/15 years**

Calculation basis

- The consumption of the reference machine purchased in 2006 was 1,422,900 kWh (usage time: 1,800 h/a over 15 years lifetime). The new dishwasher consumes just 688,500 kWh.
- Water consumption: 360 litres/h (2006 model), new machine: 165 litres/h

Additional ecological results

- The winning bidder offered an osmosis installation whose use enables a noticeable reduction of chemical cleansing liquid, thus reducing the environmental impact.
- The new machine noticeably reduces air emissions and thereby improves the room climate and reduces the need for an additional exhaust air installation, achieving indirect energy savings.

Lessons learned

The possible reductions in this product range are huge and easily replicable, especially in comparison with old machines. This product also allows for an overall financial return on investment with regards to the higher purchase cost of an energy efficient machine.

Applying life time costing at award stage was an effective way to identify the most environmentally friendly product.

With regards to the technical specifications, the next tender should also include certain criteria for air emissions and usage of chemical cleansing liquids.

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Case Study Selection

Low-Carbon Business Travel Services
Consip SpA, Italy

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- Mobility Service (savings of CO_2, costs and travel downtimes), includes CO_2 reporting, environmentally-friendly hotel solutions and video conference services
- Use of common environmental criteria developed by the Italian Ministry of Environment for vehicles and catering

Benchmark (business as usual)
- Current split between business travel by car, airplane and train
- 37,849 t CO_2/year
- 10,908 toe/year

GPP 2020 tender
- 20% of travelers travelling by car and airplane switch to train
- 33,039 t CO_2/year
- 9,842 toe/year

Results
- 4,809 t CO_2/year
- 1,065 toe/year
- 9,618 t CO_2 (2,130 toe) over the duration of the contract)

Contract tendered

Image copyright: Solarseven, dreamstime.com

- A Framework contract addressed to all Italian Public Authorities was issued by Consip S.p.A (the central purchasing agency of Italy). This was the second edition of the framework agreement on travel services that started in 2014. The Framework Agreement (FA) on business travel services is an "incomplete" one, since it is a FA with several economic operators where some terms of the contract will need to be established at a second stage. Public bodies (PB) using this "incomplete" FA must accept the minimum requirements set by Consip (admission criteria: e.g. turnover range; execution criteria: e.g. travel tool, reporting tool, etc.). They can then set further award criteria as well as other technical specifications in order to specify the level of services they wish to obtain.
- An incomplete FA is a useful tool as it:
  - gives the PBs a high level of autonomy and flexibility;
  - makes several brands applicable;
  - is able to meet multiple preferences by providing PBs with different solutions.
- The contract lasts for two years. The FA has a volume of € 36,267,000.
- Tender processes are managed through an e-platform (set up by Consip) minimising paper use and maximising process savings. The first edition of the FA (Business Travel ed.1) has produced 70 tenders in the second stage of the FA.
- Different optional services are provided such as Inplant (travel agency located inside the PA offices), Self Booking Tool, Videoconference service, Meeting Management service (catering service, reservation of the meeting room, sending invitations, etc.) and Mobility Management service.
- The Mobility Management service consists of a business travel management service that optimises costs and travelling time. For each journey, it considers the entire integrated path the applicant needs to follow from the point of departure to point of arrival, giving all the information related to the available public transport services and the closest hotel to the meeting point. It is innovative in terms of the savings in costs, time and emissions that can be achieved by Public Authorities using the service.
- This FA follows the directions of the Italian National Action Plan for the implementation of Green Public Procurement (PAN GPP) issued by the Italian Ministry of Environment. It is also compliant with the provision of "Minimum Environmental Criteria" for Transport and for Food and Catering services.

Procurement approach

The Business Travel Services is a tender awarded to the most economically advantageous offer. In the first stage, 80 points are given for cost and 20 technical points are available. The Initiative supports sustainable choices by:

1. Enhancing the optional and innovative mobility management service. The goals of this service are:
   - To identify cheaper integrated travel solutions taking into account all associated costs;
   - To reduce the number, duration and the stops regarding the business travel associated to travel costs (eg. costs associated with work-time lost), well-being of the traveller and environmental aspects generated by the travel;
   - To promote sustainable mobility and modal integration by providing a more stringent use of local public transport.
2. Reporting the CO_2 emissions associated with different business travel proposals (for Mobility Management Service);
3. Offering vehicles (car rental services) that meet the Environmental minimum criteria adopted by the Ministry for the Environment, Land and Sea (MoE) with DM 8 May 2012 (OJ No. 64 of 19 March 2011);
4. Providing catering services that meet the Environmental minimum criteria adopted by the MoE with DM 25 July 2011 (OJ No 220 of 21 September 2011);
5. Giving the possibility to choose „green" hotels (respecting environmental policies and measures, e.g. Eco-label (2009/578/CE)/Nordic Swan (ver. 3.4) or equivalent/ UNI EN ISO 14001; EMAS);
6. Offering a videoconference service in place of physical meetings.

The award criteria were divided into different qualitative criteria.

Award Criteria used	
Qualitative criteria (yes/no)	**Qualitative criteria (point to be assigned)**
• Time limit improvements (reservation request) • Complaints service improvements • Reporting service improvements • CO_2 reporting service (CO_2 reporting for single business travel solution, in compliance with UNI EN ISO 14064-1) • Monitoring service improvements • Business Travel Tool customisation	• Self booking tool improvements • Mobility Management Service for travel request, searching for integrated travel solution and Trip Plan. The evaluation takes into account: ▸ Searching tools of the information concerning intermediate routes (tools, indications, level of coverage) ▸ Automation level ▸ Workaround solution for mobility improvements (e. g. car sharing)

Criteria development

The criteria followed the Common Minimum Criteria developed by the Italian Ministry of Environment (www.minambiente.it/pagina/criteri-vigore#1) for car rental and catering. Consip developed specific criteria for mobility services, videoconference services, environmentally-friendly hotel services and CO_2 reporting taking into account the lesson learned and market engagement from the previous FA.

Case Study Selection

Results

To assess the environmental benefits of the tender, Consip conducted a tailor-made calculation. The key assumptions for the calculations includes that - without the FA - the current split of business travel between car, airplane and train remains the same. and that the low-carbon-tender solutions could potentially contribute to a shift of 20% car and airplane travel to train travel.

	CO_2e emissions	Energy consumption
Low Carbon Solution	33,039 t CO_2e/year	9,842 toe/years
Business as usual (benchmark)	37,849 t CO_2e/year	10,908 toe/year
Annual Savings	**4,809 t CO_2e/year**	**1,065 toe/year**
Total Savings (over the duration of the contract)	**9,618 t CO_2e/year**	**2,130 toe**

Calculation basis

- Consip in cooperation with IFZ made the calculations using the GPP 2020 methodology.
- Baseline for a standard travel route: 750 km (Milan-Naples)
- Consip estimated the number of business journeys (business as usual) as follows:
  - Airplane: 161,980 journeys per year
  - Car: 47,300 journeys per year
  - Train: 300,000 journeys per year
- For the car travel, Consip assumed that the CO2-emissions are 130 g/km (national regulatory limit „DM 8 maggio 2012 „Criteri ambientali minimi per l'acquisizione dei veicoli adibiti al trasporto su strada" - see more at: http://www.minambiente.it/pagina/criteri-vigore#13") and that the energy consumption is 5.6 l/100km (petrol). Further, it was assumed that there is only one passenger per car.
- For the air and train travel, Consip calculated the CO2-emissions and the energy consumption with the help of the calculator "Ecopassenger". For the train and the airplane medium load factors were taken.
- The CO2-emissions for a travel of 750 km are as follows:
  - Airplane: 155.0 kg CO2/travel; 48.7 l/travel (petrol)
  - Car: 97.5 kg CO2/travel; 42.0 l/travel (petrol)
  - Train: 27.0 kg CO2/travel; 14.2 l/travel (petrol)

The GPP 2020 calculation spreadsheet is available on request from info@gpp2020.eu.

Lessons learned

In conclusion, the main benefits of the FA on Business Travel Services are:

- Strategic: efficiency/flexibility in business travel processes
- Organisational:
  - monitoring, reporting, custom profiling, training and constant review of the SLA;
  - implement policy for change management to improve the cultural approach in sustainable mobility;
- Economic:
  - control and cost rationalisation;
  - optimisation;
  - elimination of the downtimes;
- Environmental:
  - reduction of CO_2 emissions;
  - creation of a sustainable think cycle business travel approach;
  - implementation of "Green Business Travel Policies";
  - monitoring of environmental impact.

	Recommended	Future improvements
Lessons learned	Compliance with Common Minimum Criteria (vehicles and catering) worked out well Creation of Green Business Travel Policy introducing Mobility Service	It would have been nice to develop a specific scenario based related scientific studies and data

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Case Study Selection

Electric scooter rental for Barcelona City Police

Barcelona City Council, Department of Logistics and Infrastructures

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- 100% reduction in direct CO2-emissions and 87% reduction in total CO2-emissions
- 85% energy savings
- 36,144 litres petrol saved in 4 years

Previous tender
- 30 heat engine-powered scooters (petrol)
- 20 t direct CO2-emissions/year
- 25.2 t direct and indirect CO2-emissions/year
- 6.9 toe energy consumption/year

GPP 2020 tender
- 30 electric scooters (increasing to 198 in 2018)
- 0t direct CO2-emissions/year
- 3.2 t indirect CO2-emissions/year
- 1 toe energy consumption/year

Results
- 63 TOE energy savings (over 15 years)
- 369 t CO2 savings (over 15 years)
- 54 % water reduction

Contract tendered

- Renting of electric scooters for the City Police – Department of Logistics and Infrastructures at the Barcelona City Council Prevention, Security and Mobility Division.
- General data: 30 electric motor scooters, type 20, equipped and adapted (GPS, audible signals, paint and stickers, etc.), with 30,000 km max.
- Contract length: 48 months.
- Tender budget: € 486,720.00 VAT excluded.

In the upcoming and consecutive years, heat-engine scooters will progressively be replaced until there is a total fleet of 198 electric scooters, according to this timeline:

Image copyright: Barcelona City Council

Evolution of the electric motor scooter fleet of the Barcelona City Police					
	2014	2015	2016	2017	2018
Annual planned substitution		30	64	49	55
Total number	0	30	94	143	198

Procurement approach

Technical specifications: The technical specifications establish the vehicle characteristics. The chart below details features related to electric engines (1.1 Engine; 1.5 Autonomy and battery)

1. Technical characteristics	
1.1 Engine specifications	Type: Electric engine Nominal power: > 10 kW Maximum power: > 33 kW Engine torque: > 70 Nm
1.2 Autonomy and battery	Min. 90 km in city with a discontinuous 8-hour cycle and a 120 kg load. Charged battery cycles ≥ 2000. Full charge: maximum 5 h Quick charge (80%): maximum 3 h Recharging using domestic power plug not greater than 16 A. Recovery of charge during braking operations. Recovery of charge when reducing speed.

The contract also includes: comprehensive vehicle maintenance according to factory delivery, repairs of all failures and all scooter systems, 24-hour city and roadside assistance, tyre replacement, all inspections as recommended by the producer, replacement of all parts due to wear, breakage and/or failure and all regular inspections as determined by Vehicle Technical Inspection legislation in force. It also includes the taking out of an insurance policy that guarantees the financial consequences stemming from the use and driving of motor vehicles, which shall be an 'all risks vehicle insurance without deductible'.

Results

With the data available on the replaced vehicles and the technical data on the electric vehicles leased via the present contract, the following results are obtained.

	Direct CO_2 emissions	Direct and indirect CO_2 emissions	Energy consumption
Electric vehicles (2015 tender)	0.0t CO_2/year	3.2t CO_2/year	1.0 toe/years
Conventional vehicles (until 2014)	20.0 t CO_2/year	25.2 t CO_2/year	6.9 toe/year
Annual savings 2015 (30 vehicles)	**20.0 t CO_2/year**	**22.0 t CO_2/year**	**5.9 toe/year**
Total Savings (4 years)	**80.0 t CO_2**	**88.0 t CO_2/year**	**23.5 toe**

Calculations were done using the vehicles' technical data for the contract duration and the GPP 2020 calculator for vehicles.

Calculation basis

- Usage data for 30 replaced heat-engine vehicles: 3 different models with average consumption of 6.05 l/100 km and average annual distance of 4,975 km per vehicle
- Average distance: Calculations used the annual average of the 30 substituted vehicles, significantly lower than the maximum established in the specifications for the purposes of contract guarantees (approx. 19,900 km instead of maximum of 30,000 km in 48 months).
- The energy conversion factors included in the GPP 2020 calculator for vehicles: energy content of petrol (32 MJ/l), direct and total (= direct and indirect) CO2 emissions of petrol (2,218 kg/l and 2,786 kg/l respectively).

Case Study Selection

- Electric consumption of the new vehicles: the technical data was drawn from the vehicle specification sheet (8 kWh/100 km) for the same average distance as the replaced vehicles.
- The emissions factor applied to the electric mix is that recommended by the Catalan Office on Climate Change (2015 Practical Guide for Calculating GHG Emissions): 0.267 kg CO2/kWh

Advantages obtained by incorporating electric motor scooters:

- 87% reduction in total CO2 emissions and 100% reduction in direct emissions from fuel combustion.
- 85% energy savings.
- A saving of 36,144 litres of petrol in 4 years with the associated financial savings.

as this contract is part of a pre-approved plan, which foresees the gradual substitution of 198 scooters, we can make a first estimate of the benefits for the whole planning, with following results:

	Direct CO_2 emissions	Direct and indirect CO_2 emissions	Energy consumption
Annual saving 2016 (94 vehicles)	62.8 t CO_2	68.9 t CO_2	18.4 toe
Annual saving 2017 (143 vehicles)	95.5 t CO_2	104.7 t CO_2	28.0 toe
Annual saving 2018 (198 vehicles)	132.2 t CO_2	145.0 t CO_2	38.8 toe
Total accrued saving (2015-2018)	**310.5 t CO_2**	**340.6 t CO_2**	**91.1 toe**

Lessons learned

- The successive pilot tests let us verify that the electric vehicle market and technology is mature enough to consider acquiring these vehicles for municipal services and let us prove that the progressive greening of the fleets is now possible.
- Prior to the entry into force of the new tender, the recharging infrastructure had to be installed for the 30 electric motor scooters in a car park of the City Police.
- Once the entire fleet of heat-engine vehicles is replaced, the reduction in CO2 emissions generated, the energy saving and financial saving for unconsumed petrol will be significant every year.
- In addition to the benefits above, adding electric vehicles also entails an important reduction in atmospheric polluting emissions (NOx, PM, etc.), thus contributing to improving air quality, one of the main environmental challenges for the Barcelona metropolitan area.

Contact

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Case Study Selection

Framework agreement for video interpretation service
Federal Procurement Agency, Austria

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- Savings of about 1,798 t greenhouse gas emissions
- Reduction of travel expenditure for interpreters

Benchmark
Face-to-face interpreting
- 365 t CO_2e emissions/ year
- 114 toe energy/year

GPP 2020 tender
video interpreting
- 6 t CO_2e emissions/year
- 3 toe energy/year

Results
- Savings of 1,798 t CO_2e emissions in 5 years
- Savings of 555 toe energy in 5 years

Contract tendered

- Tender for video interpretation service. Within up to 2 minutes, the staff of hospitals, police, legal authorities, etc. can contact an interpreter via internet. The service works with different kinds of hardware such as desktop computers, notebooks, tablet-computers or smartphones. The service requires a special software for video interpretation and a network of several hundred interpreters.
- Tender of the Federal Procurement Agency, Austria
- Framework agreement for video interpretation service in Austria with one supplier
- Period: Dec. 2015 - Dec. 2020 = 60 months
- Total volume: 30 Million Euro (without VAT)

Procurement approach

A competitive procedure with negotiation and prior public announcement was chosen.

The tender of the video interpretation service did not include environmental criteria. The video interpreting service itself is assessed as environmentally friendly. This is because the video interpreting does not require any travel by the interpreters compared to conventional interpretation, where the interpreter has to be physically present. However, video interpreting does have a carbon footprint. Electronic appliances, server rooms (electricity consumption for servers and for the cooling) and communication infrastructure are necessary. The environmental impact of video interpreting is lower than that of conventional interpretation (see below).

Results

	Direct CO_2 emissions	Direct and indirect CO_2 emissions
GPP2020 tender	5.7 t CO_2e/year	3.1 toe/year
Benchmark	365.2 t CO_2e/year	114.0 toe/year
Annual savings	**359.5 t CO_2e/year**	**111.0 toe/year**
Total savings	**1,797.6 CO_2e**	**554.8 toe**

Calculation basis

- We assume that during the 60 month contract period, 15,249,000 minutes of interpreting are provided.
- We further assume that the length of a call is on average 11.5 minutes. Thus, during the 60 month contract period, the video interpreting service is provided 1,326,000 times in total and 265,200 times per year.
- For the assessment of the environmental impact of the service, we assume that in 50 % of all cases where video interpreting is purchased, a conventional interpreting service would have otherwise been purchased. We further assume that in the other 50 % of cases, no interpreting service would have been purchased. We assume that in the conventional interpreting service, the interpreter had to travel 20 km (10 km each way) with a diesel-car that uses 5.0 l/100 km.
- The following assumptions are made for the video call per internet:
- The two electronic appliances that are necessary to perform the video call have a power input of 80 watt. This results in an electricity consumption for the electronic appliances of **0.0307 kWh per call**.
- The bandwidth of a video call is 300 kbit/s. In a video call that lasts 11.5 minutes, 51.75 MB of data are transferred. According to the study „Centre for energy-efficient tele-communications“ (The power of wireless cloud, University of Melbourne, 2013) the transformation of 1 GB consumes around 2 kWh in the data center. This results in an electricity consumption of **0.1035 kWh per call**.
- Without taking the energy consumption of the communication infrastructure (like the mobile telephone poles) into account, the electricity consumption of a video call is **0.1342 kWh**.
- The emission factor for the Austrian electricity mix is 0.161 kg CO2/kWh.

Lessons learned

Especially at the level of public procurers from federal agencies like ministries we currently perceive an attitudinal change. Clients of the Federal Procurement Agency (BBG) increasingly pay attention to and demand innovative and ecological products. This conclusion can be drawn due to the number of potential clients for video interpretation.

The implementation of new procurement approaches demands specific know-how. The Federal Procurement Agency (BBG) supports their clients when it comes to the implementation of innovative projects through knowledge and experience concerning innovation procurement and sustainable procurement. However, one of the biggest challenges regarding this tender was reporting of binding needs.

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Case Study Selection

Rental and purchase of photovoltaic charging stations for electric vehicles

OesteCIM, Portugal

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- Local energy production to charge electric vehicles
- 38% of the energy is produced by the charging stations
- 28.9 t CO_2e-savings over 12 years

Benchmark
- Conventional grid electricity
- 6.6 t CO_2e/year
- 1.1 toe energy

GPP 2020 tender
- Photovoltaic charging systems
- 4.2 t CO_2e/year
- 1.1 toe energy

Results
- 2.4 t CO_2e-savings/year
- 28.9 t CO_2e-savings/ lifetime
- 36.7% of CO_2e emissions savings over 12 years

Contract tendered

- Tender for the long term rental and subsequent purchase of solar-photovoltaic systems to charge electric vehicles with monitoring software.
- 12 solar-photovoltaic charging stations.
- 6 month lease contract, with subsequent purchase by the municipalities.
- Total cost: 65 500 €

Image copyright: OesteCIM

Procurement approach

Tendering followed the direct agreement procedure.

12 solar-photovoltaic systems to charge electric vehicles	
Technical specifications	**Award criteria**
• Solar panel of type 230-300 W; • Invertor of type SMA SB240 or equivalent with appropriate power; • System that monitors the energy flow produced by the system and the energy consumed at the charging points.	• Lowest price.

Criteria development

Criteria were developed in order to partially replace the consumption of conventional grid electricity by the electric vehicles with a localised production solution.

Results

	CO_2 emissions (t CO_2e/year)	Energy consumption (toe/year)
With Solar-photovoltaic systems	4.2	1.1
Conventional grid electricity	6.6	1.1
Savings (annual)	**2.4**	**0.0**
Savings (12 years)	**28.9**	**0.0**

*12 years is the expected lifetime for the Electric vehicles to which the solar systems will be allocated to.

Calculation basis

Estimations were made using the GPP 2020 energy contracting calculator.

This tender was carried out alongside a separate procurement for 12 electric vehicles by OesteCIM (see accompanying tender model). After the rental period is finished the municipalities will purchase these stations.

The photovoltaic charging stations do not have enough capacity to completely charge the 12 Electric vehicles, but they provide part of the energy needed and used by the vehicles.

Data:

- 12 photovoltaic charging stations with 250 Watt average output power, with an average value of daily solar incidence equal to 4.5 hours (excluded the first morning hours and the latest afternoon hours due to weak solar power).
- The lifetime of the charging stations was estimated as 12 years (the same lifetime as the Electric vehicles), even if the lifetime of photovoltaic panels can be higher.
- We estimated that the Twizy drives 50 km a day with an energy consumption of 8.2 kWh/100 km, which means 4.1 kWh/50 km. Another assumption made was that the 12 Renault Twizy are used only on weekdays, with an average usage of 22 days per month.
- Annual electric vehicles energy consumption: 12 988.8 kWh (4.1 kWh/day * 22 days/month * 12 months/year * 12 vehicles).
- Annual charging stations energy production: 4 927.5 kWh (4.5 hours/day * 250 W * 365 days/year * 12 stations).
- The low carbon solution value inserted into the GPP 2020 calculator was therefore 4 927.5 kWh of annual electricity produced by the photovoltaic panels plus 8 061.3 (12 988.8 – 4 927.5) kWh of annual electricity produced by conventional sources. As benchmark we chose the national electricity mix.
- The CO2 emission factor for the national electricity mix in Portugal is considered as: 0.506 kg/kWh.
- The CO2 emission factor for green electricity was taken from GPP 2020 energy contracting calculator: 0.017 kg/kWh.

Lessons learned

The growing energy dependence on oil and the tremendous environmental impact resulting from it have led the InterMunicipal Community of Oeste to opt for the installation of 12 photovoltaic systems to charge the electric vehicles. This choice also has a social effect, aiming to reduce the gap between citizens and renewables sources of energy.

The devices installed can produce and provide 38% of the energy needed by the electric vehicles. It would be therefore desirable, in case of future similar tenders, to increase the power provided by the devices, in order to achieve energy independence for the vehicles.

The acquisition of electric vehicles and photovoltaic charging stations was part of the REPUTE Pilot Project, whose aim is to foster the use of renewables energies in public transport in the oceanic European countries.

The approach is definitely replicable in other communities or cities even on a larger scale, enhancing the number of charging stations and thus the energy produced and made available.

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Case Study Selection

Rental and purchase of electric vehicles
OesteCIM, Portugal

GPP 2020 | procurement for a low-carbon economy

- 100% reduction in direct CO2 emissions and 55% reduction in total CO2 emissions
- During the lifetime of the vehicle (12 years) savings of 88 t of CO_2e
- During the lifetime of the vehicle (12 years) savings of 38 toe of used energy

Benchmark
Diesel vehicles
- 159 t CO_2-emissions
- 50 toe energy consumption

GPP 2020 tender
Electric vehicles
- 71 t CO_2-emissions
- 12 toe energy consumption

Results
- 38 toe energy savings
- 88 t CO_2-savings

Contract tendered

- Tender for long term rental and subsequent purchase of electric vehicles by the municipalities of OesteCIM.
- 12 electric vehicles of L7e class purchased for urban travel in substitution of old diesel vehicles.
- 6 months lease contract, with subsequent purchase by the municipalities.
- Total cost: 74 800 € (excluding VAT)

Image copyright: OesteCIM

Procurement approach

Tendering followed the direct agreement procedure.

12 L7e electric vehicles	
Technical specifications	**Award criteria**
• Maximum direct emissions of CO2: 0 g/km • Fuel: Electricity • Maximum torque: 33 Nm • Maximum power. 5 hp (4 kW) • Automatic gearbox • Minimum range: 50 km • Verification: All information available in standard test documentation	• Lowest price.

Contract clauses:

- Mandatory repair and maintenance according to the manufacturer's instructions.
- Battery rental with a maximum of 12 000 km/year.

Criteria development

As the previous car fleet was composed of 12 diesel cars, criteria were simply defined in order to obtain the most efficient vehicles (with an affordable price) in this class.

Results

	CO_2 emissions (t CO_2e/lifetime)	Energy consumption (toe/lifetime)
(Low Carbon Solution)	4.2	12
(Benchmark)	6.6	50
Savings	**88t CO_2e/lifetime**	**38 toe/lifetime**

Calculation basis

Estimations were made using the GPP 2020 Vehicles calculator.

- 12 vehicles were purchased to replace 12 diesel vehicles (benchmark) in urban travel;
- OesteCIM estimates that the vehicles will travel 144 000 km during their lifetime. This is 50 km a day, 5 days a week, 48 weeks per year for a total of 12 years.
- The Benchmark vehicles were modelled based on a diesel Renault Clio. Fuel consumption of the Renault Clio was taken as an average of the values supplied available at clean vehicles portal (www.cleanvehicles.com) and assumed to be 3.4 l/100 km, emitting 94 g CO2/km (direct and indirect emissions according to GPP 2020 vehicles calculator).
- The Low Carbon Solution purchased by OesteCIM was a Renault Twizy with a fuel consumption of 8.2 kWh/100 km, indirectly emitting 41 g/km.
- CO2 emission factors for electricity generation in Portugal were estimated as 0.506 kg/kWh

Lessons learned

Electric vehicles are the best mobility solution to address important issues of our time, such as global warming, air pollution and fossil fuels dependency.

There are two main factors that are turning electric vehicles into a more viable solution: on one side, the technological evolution of batteries, with less recharge time, more autonomy and more power; on the other side, the price is becoming increasingly affordable.

Electric vehicles are the only solution which is 100% Zero-emissions during usage. Zero-emissions include zero greenhouse gases emissions, zero noise emissions and zero air pollutants (like VOCs and particulate matter) emissions.

Despite the improving technological features of the batteries, autonomy is still low compared to a standard petrol or diesel vehicle. Therefore, the purchase of electric vehicles must be accompanied by the purchase and installation of charging stations in the city, in order to facilitate the movement of the vehicles.

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Case Study Selection

Purchase of electricity from 100 % renewable energy sources
Municipality of Ljubljana

GPP 2020 | procurement for a low-carbon economy

- 100 % of energy supply from renewable energy sources
- Joint green public procurement included 107 legal entities from the Municipality of Ljubljana.

Benchmark
- 50% green electricity
- Emissions 16,753 t CO2e/ year

GPP 2020 tender
- 100% green electricity
- Emissions 1,575 t CO2e/year

Results
- 45,535 t CO_2e reduction in 3 years
- 90.6 % reduction of CO_2e

Tender

- Joint green public tender published by Municipality of Ljubljana (MOL) 6th February 2015.
- Joint procurement included MOL and 106 other legal entities (about 1,100 measurement points), which are represented by MOL. Legal entities are public companies, public institutions, health centres, theatres, libraries, elementary and music schools, nurseries and other public institutions in the Municipality of Ljubljana.
- The framework agreement between the Municipality of Ljubljana and the selected bidder lasts for three years (2015-2018).

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Procurement approach

Type of procurement procedure: Public tender, open procedure on the basis of article 25 of the Public Procurement Law (ZJN-2E, Official Journal of the Republic of Slovenia, nr. 12/13 – official consolidated text and 19/4 and changes).

Subject matter: Purchase of electricity that is produced entirely from renewable energy sources for the period of three years.

Selection criteria: Potential suppliers had to fulfill several described requirements from the tender documents as well to follow detailed instructions regarding verification.

Specifications: Electricity must be produced entirely (100 %) from renewable energy sources which is proved with the statement of Guarantees of Origin.

Criteria development

This green public procurement was carried out according to current legislation regulating fields of public procurement, public finance and the field of this specific procurement. Procurement complied with the provisions of the Regulation on Green Public Procurement (Official Journal of the Republic of Slovenia, nr. 102/2011 and changes) and Annex 1 to the Regulation on Green Public Procurement.

Results

	CO_2 emissions (t CO_2e/year)	Amount of generated supply from renewable energy sources
(Low Carbon Solution)	1,575.2 t CO_2e/year	92,660,000 kWh/ year =7,967.4 toe/year
(Benchmark)	16,753.4 t CO_2e/ year	46,330,000 kWh/ year =3,983.7 toe/year
Savings	**15,178.2 t CO_2e/year**	-
Savings in the three year duration of the contract	**45,534.5 t CO_2e**	-

Calculation basis

- GPP: 100% green electricity. Last Tender: 50% green electricity
- CO2 emissions reduction was calculated by taking 50 % of the 92,660,000 kWh (yearly amount of electricity) and multiplying it with the CO2 emissions per kWh (for Slovenia: 0.34461 kg CO2/kWh) and reducing this amount with the CO2-emissions of green electricity (around 0.017 kg/kWh).
- Formula: ((92,660,000 kWh * 0.5) * 0.34461 kg CO2/kWh) – (92,660,000 kWh * 0.5) * 0.017) = 15,965.8 – 787.6 t CO2 = 15,178.2 t CO2.

Lessons learned

The contracting authority is pleased that the GPP tender resulted in a service contract where all required certifications for supplying electricity produced from 100% renewable energy sources were provided. This GPP approach has great potential for replication both in Slovenia as well as in the broader region. The tender was possible without any additional investments and resulted in savings that will be used for energy related renovations and other sustainable investments.

Contact

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Case Study Selection

Joint Procurement of Energy performance Contracting in the health sector

Consip SpA

GPP 2020 | procurement for a low-carbon economy

- Energy savings of 25% compared to the current contract
- Savings account for over 200,000 tonnes CO_2e

Benchmark
- 819,057 t CO_2e
- 231,338 toe

GPP 2020 tender
- 613,310 t CO_2e
- 173,226 toe

Results
- Energy savings: 58,112 toe
- Reduction of 205,747 t CO_2e

Tendered contract

- Energy Performance Contract for the Health sector including management, operation and maintenance of facilities and building structures, supply of energy for heating and electricity, energy improvement and energy efficiency of building/facility systems.
- Awarded as a Framework contract worth € 2,050,000,000 by the Italian central purchasing agency Consip SpA, accessible by any Italian public authority.
- The contract is divided into 16 geographical lots and public bodies have 24 months from the start of the contract to make orders. Within the expiration date of the framework contract, public bodies may issue a supply order which would result in services with a duration of five or seven years.
- The contract follows the Italian National Action Plan for the implementation of Green Public Procurement (PAN GPP) and is compliant with the provision of DM 07/03/2012 "Minimum Environmental Criteria" for heating/cooling systems in buildings.

Procurement approach

Bids are assessed using a MEAT approach, with an emphasis on the efficient use of resources. The impact on energy consumption resulting from inefficiencies in the performance of the building system and greater energy consumption resulting from its incorrect operation and maintenance should both be reduced.

In particular:

- the supplier must carry out a preliminary audit of energy supply and a check indicating the energy class of the building;
- the supplier must implement energy improvements identified on the basis of an initial energy check and subsequent energy audit;
- energy certification of the building and regular updates of the certificate;
- better and more efficient management systems are required;
- the supplier must implement a monitoring system including the monitoring of savings;
- the building must comply with emissions limits laid out in the national systems and emissions trading regulations.

Award criteria are divided equally between financial and technical elements, with 50 points given to each. Points are awarded according to quantitative and qualitative criteria, as laid out in the table below:

Award Criteria used		
	Quantitative criteria - points to be assigned	Qualitative criteria - points to be assigned
a. Lots Analysis and scenarios definition;		3
b. Organisational, operational and logistical structure;	4.5	5.5
c. Promotion and adhesion to the tender;		2.5
d. Energy Efficiency Management and other technological building services;		7
e. Energy management services;		5.5
f. Government of the contract;		2
g. Energy retrofit;	10 (enery savings offered)	10 (technical project for energy retrofit)

Criteria development

The criteria follow the Minimum Common Criteria developed by the Italian Ministry of Environment (http://www.minambiente.it/pagina/criteri-vigore#1) and Consip specific criteria.

Results

Energy savings

The table below summarises the main results in terms of energy savings. These savings are assessed assuming a time span of 2.5 years. This timeframe was chosen because the energy efficiency measures must be completed within three years of the beginning of the contract:

	CO_2e emissions	Energy consumption
Low Carbon Solution	613,310 (t CO_2e/2.5 years)	173,226 (toe/2,5 years)
Benchmark	819,057 (t CO_2e /2,5 years)	231,338 (toe/2,5 years)
Total savings: Benchmark - Low Carbon Solution	**205,747 t CO_2e/2,5 years**	**58,112 toe/2,5 years**

Cost savings

The projected energy savings over the lifetime of the service will lead not only to a reduction in CO_2e, but also to direct savings of 85,612,100 €/2.5 years in heating costs with respect to the benchmark:

	Heat cost (year)	Heat cost (2.5 years)
Low Carbon Solution	102,080,160 (€)	255,200,400 (€)
Benchmark	136,325,000 (€)	340,812,500 (€)
Savings: Low Carbon Solution - Benchmark	**34,244,840 (€/year)**	**85,612,100 (€/2.5 years)**

Calculation basis

- The energy, CO2 and cost savings associated with the adoption of the Framework contract were calculated by comparing the benchmark with a possible scenario deriving from the adoption of the Framework contract. The benchmark used is based on past real data and foresees an annual energy consumption (for heating) of 1,076,185,299 kWh or 92,535 TOE. 84 % of this energy is from methane, 16 % is from gasoline. We considered only the energy consumption for heating. Electric energy consumption wasn't included due to a lack of data about potential energy savings.
- In the scenario deriving from the adoption of the Framework Contract, the expected energy savings are 25.12% of the benchmark. This estimate is the result of expected medium energy savings from the supply of heat. To determine this percentage we considered three clusters of efficiency classes of the building (B, A, A+), their median potential savings (6%, 14%, 28%) and a weighting assigned to each cluster (1%, 19%, 80%), meaning that the majority (80%) of buildings should fulfil A+ standard..
- Using a reserve price of 0.123 €/kWh and 0.153 €/kWh respectively for the supply of methane and gasoline, the rated and projected energy consumption for each source was determined.
- Total energy savings were obtained by calculating 25.12 % of the total rated energy consumption, using 2.5 years as the life span of the service.
- For gasoline, we chose the emission factor (direct and indirect greenhouse gas emissions) 3.643 t CO2e/TOE and for methane we choose 2.871 t CO2 e /TOE (see the GPP2020-calculator for energy contracting and vehicles)
- A full spreadsheet showing the calculations used is available on request from info@gpp2020.eu

Lessons learned

There were a number of direct and indirect benefits resulting from this contract. These were:

- Strategic:
  - increased efficiency in processes
- Organisational:
  - monitoring, reporting, custom profiling, training and constant review of the specifications;
- implementing policy for change management to improve the cultural approach in energy performance contracts at organisational level;
- Economic:
  - control and cost rationalisation;
  - optimisation;
- Environmental:
  - reduction of CO2 emissions;
  - creation of a sustainable think cycle energy saving approach;
  - monitoring of the environmental impact, resulting in clear data to show savings and areas for improvement.

Do's	Don'ts
• Use award criteria aimed at reducing energy consumption and CO_2 emissions • Comply with Common Minimum Criteria	• Develop a specific scenario based on monitoring data

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Case Study Selection

Heat supply with wood
Federal Procurement Agency, Austria

GPP 2020 | procurement for a low-carbon economy

- Huge CO2-reductions achieved (23,120 t CO2), equivalent to the annual average consumption of 4,000 EU households
- Supporting independency from fossil fuels

Benchmark
Heat supply with light fuel oil
- 2,520 t CO_2/year
- 724 toe/year

GPP 2020 tender
Heat supply with wood and other renewable energy source
- 208 t CO_2/year
- 724 toe/year

Results
- CO2-reduction:
  - 2,312 t CO2/year
  - 23,120 t CO2/contract
- Energy reduction: 0 toe

Contract tendered

- Contract for heat supply for two facilities owned by a public authority in the Austrian region Klagenfurt Nord, tendered by the Austrian Federal Procurement Agency (BBG).
- A minimum of 80 % of the supplied heat had to come from renewable sources (like wood).
- In July 2015, BBG published the call for tender and the contract was awarded in December 2015.
- Supply contract with a duration of 10 years
- Total costs: around 3.9 Million € (without VAT)

Image copyright: Fotolia

Procurement approach

A negotiated procedure was used to tender the heat supply.

12 solar-photovoltaic systems to charge electric vehicles

Technical specifications	Award criteria
• Heat supply of 2 facilities in Klagenfurt Nord • Heat transfer at central heat transfer points • Definition of flow and return temperature • Maximum thermal output and input • Definition of the line heat density of the network in case the contractor supplies more objects of the public authority nearby with heat • A minimum of 80 % from renewable energy sources	• Price: maximum of 90 points • Heat supply with a higher share of renewable energy sources (as the minimum value of 80 %): maximum of 10 points

Contract conditions

- Definition of renewable energy sources: Non-fossil energy sources (wind, solar, geothermal, wave and tidal energy, hydro, biomass (wood, etc.), waste with a high share of biodegradable waste, landfill gas, sewage gas and biogas) including carcass meal, waste lye and sewage sludge.
- Capital preservation in line with the Corinthian Bio-Heat-Index (=Kärntner Biowärmeindex).
- Possibility to connect more facilities to the heat supply.

Criteria development

After a market survey and a consultation with the customer, the Federal Procurement Agency (BBG) decided to ask for a minimum of 80 % energy from renewable energy sources. This percentage is sensible from a technical as well as from an economical point of view. A percentage of 100 % energy from renewable sources was hoped for. Therefore, an offer with 100 % of energy from renewable sources received another 10 % of the total points. With this award criterion, the FPA underlined its interest for an energy supply with highly reduced CO2 emissions.

Results

The contractor provides energy made of 100 % wood and other renewable energy sources. Tthe CO2 reduction due to the transition from 100 % light fuel oil to 100 % wood can be found below. The transition doesn't influence the amount of energy consumed.

	CO_2 emissions	Energy consumption
GPP2020 tender	208 t CO_2/year	724 toe/year
Benchmark (last tender)	2,520 t CO_2/year	724 toe/year
Annual savings	**2,312 t CO_2/year**	**0 toe/year**
Total savings (10 years)	**23,120 t CO_2**	**0 toe/year**

Calculation basis

Previously, public authorities consumed around 700 t light fuel oil per year. We estimate that the new contractor provides 100% of the renewable energy from wood.

Direct and indirect CO2-Emissions of light fuel oil: 3.595 t CO2/t

- Direct CO2-Emissions: 3.160 t CO2/t (Source: Bundesamt für Umwelt, Schweiz, 2015)
- Indirect CO2-Emissions: 0.435 t CO2/t (Source: GEMIS)

Calorific value light fuel oil: 0.0429 TJ/t; Calorific value 700 t light fuel oil: 30.03 TJ

Direct and indirect CO2-Emissions wood: 0.099 t CO2/t

- Direct CO2-Emissions: 0.020 t CO2/t (Source: Bundesamt für Umwelt, 2015)
- Indirect CO2-Emissions: 0.079 t CO2/t (Source: GEMIS)

Calorific value wood (stored for 2 years): 4 kWh/kg (Source: Waldverband Österreich, 2009); Calorific value of 2 104 t wood: 30.03 TJ

Lessons learned

The company with the best offer is going to supply heat from 100 % renewable energy sources.

The change from light heat oil to renewable energy sources offers a huge reduction of CO2 emissions. Furthermore, with the use of local biomass, the added value is kept in the region.

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Case Study Selection

Low-carbon motorway design
Rijkswaterstaat, The Netherlands

GPP 2020 | procurement for a low-carbon economy

- A tendering method that aims to reduce CO_2e emissions was applied. Bidders were encouraged to offer a lean design and to apply innovative materials and working methods.
- Savings achieved were equivalent to the average annual CO_2e emissions of about 1,500 European households.

Standard tender
- 36,589 t CO_2e emissions
- 10,428 toe energy consumption

GPP 2020 tender
- new procurement methodology & design optimisation
- 27,645 t CO_2e emissions
- 7,879 toe energy consumption

Results
- 8,944 t CO_2e emissions reduction
- 2,549 toe energy savings

Contract tendered

A Design, Build, Maintain and Finance contract (DBFM) divided into two parts.

Image copyright: Rijkswaterstaat

Part 1:

This covered reconstruction of the A12 motorway and a small section of the A50 between the city of Ede and the Grijsoord Junction. The contractor was asked to design, carry out, maintain and finance the project and will be held responsible for the condition of the infrastructure for a period of 16 years after completion.

This first part of the contract includes:

- Expanding the motorway from 2x2 lanes to 2x3 lanes over a length of about 11 kilometres including 2 emergency lanes
- Adaptation of road signalling
- Mitigation, compensation and integration measures
- Adaptation or installation of noise reducing screens
- Maintenance and expansion of emergency services
- Adaptation of connecting roads to road site facilities
- Application of noise reducing road surface material with at least the acoustic quality of two-layered porous asphalt on the main carriageway of the A12 and over almost the whole section of the A50 that is included in the reconstruction.
- Widening a viaduct
- Replacement of a railway viaduct
- Widening four underpasses and construction of one new underpass
- Several adaptations to the Grijsoord junction

Public lighting is not permitted as this section of the motorway is situated in the 'Veluwe' natural wildlife reserve.

Part 2:

This includes the regular maintenance of the A12 motorway section between Veenendaal and Ede. The contractor will have responsibility for maintaining the infrastructure and technical facilities for 18 years after the contract has been signed.

This second part of the contract covers:

- Maintenance of:
  - 2x2 lanes with emergency lanes and traffic jam lanes of approximately 8 kilometres in length;
  - four viaducts;
  - one underpass;
  - all noise-reducing screens;
- Construction or installaion of:
  - hardware for operation of traffic jam lanes;
  - dimmable public lighting on part of the section;
  - three connections to crossing roads

The maximum price ("ceiling price") the provider was willing to pay for this contract was set at € 83,700,000.

This contract was tendered sustainably according to Dutch government policy and contributes directly to the national policy: "20% less CO_2 emissions in 2020 than 2009".

The map below shows the affected area of the A12 between Veenendaal and Grijsoord Junction. The distance between Veenendaal and Grijsoord is 19 km.

Image copyright: Google

Procurement approach

Tendering followed a competitive dialogue procedure.

- Dialogue started following the selection of five potential providers.
- Two dialogue phases were foreseen, each consisting of multiple rounds.
- After the first dialogue phase, three providers remained.
- After the second dialogue phase, these three providers were allowed to bid for the DBFM contract.
- The bid is based on the most economical advantageous tender (MEAT) approach. i.e. the final bid consists of a bidding price and 4 quality criteria.

Case Study Selection

- Rijkswaterstaat uses a MEAT calculation to select the provider offering the best quality to price ratio. The bidding price should not exceed the € 83,700,000.
- Offers were assessed based on the bidding price and the following 4 quality criteria:
  - Organisation
  - Hindrance to road & railway traffic
  - Impact on nature
  - Sustainability

Sustainability

This tender model focuses on the final criteria: sustainability. By applying this last criteria Rijkswaterstaat shows that it wants a provider with an energy efficient working process offering high product quality (i.e. low environmental impact). The MEAT approach includes both process and product in the price evaluation.

- Working processes: Rijkswaterstaat favours companies that reduce CO_2 emissions by organising their working processes efficiently. This is done by deducting a fictional amount of money from the bidding price. The higher the efforts to reduce CO_2 emissions, the larger the deduction. The tool used monetise this benefit is called the CO_2 Performance Ladder, see www.skao.nl.
- Product Quality: Rijkswaterstaat favours products with a low environmental impact due to materials and working methods. CO_2e emissions are a part of the environmental impact. In order to monetise product quality, Rijkswaterstaat has developed the software instrument DuboCalc. DuboCalc is based on the life cycle assessment (LCA) of all materials that are used in the construction. The result of this monetisation is presented as the "environmental costs indicator value" (ECI Value, see http://www.youtube.com/watch?v=cAaL4FfBQNc).

The **Most Economic Advantageous Tender (MEAT)** approach implies a pricing of both above mentioned quality aspects. The ECI Value and CO_2 Performance Ladder are used in the MEAT procedure as follows:

1. The contracting authority provides organisations that have expressed interest in bidding with all functional requirements and technical framework conditions.
2. The organisations make a design and calculate the price and the ECI Value.
3. Bidders also state how much effort they will put in to reducing CO_2e emissions caused by their internal operational processes. This determines their rung on the CO_2 Performance Ladder.
4. A bid is presented to the contracting authority including the three criteria of bidding price, CO_2 Performance Ladder rung and ECI Value.
5. The contracting authority calculates the monetary value of the benefits and deducts these from the bidding price;
6. The bidder with the lowest combined bidding price including these externalities wins the tender.

Criteria development

- The CO_2 Performance Ladder was used for this tender. Each rung of the ladder yields a one percent fictional deduction of the bidding price. The highest rung (five) yields a five percent deduction from the total bidding price.
- A reference design was used to estimate quantities of materials required for this work. These quantities were used to calculate the ECI Value of the reference design using DuboCalc. The calculation was limited to the materials that contribute the most to the ECI Value.
- Using DuboCalc, an ECI Value of 3,600,000 was calculated for a design life time of 50 years. However, according to their professional knowledge the project team expected that the most optimal design could reach an ECI Value of as low as 2,800,000.
- The project team decided that a maximum deduction of the bidding price of € 4,000,000 would be applied for the sustainability criterion in this tender. This meant that the bidder that could design the civil structures in such a way that, when the total ECI Value is as low as 2,800,000 - or lower, it would be awarded with a fictional deduction of the bidding price of € 4,000,000. A design that scored 3,600,000 would get no deduction from the bidding price. Other ECI Values would result in a deduction proportional to the ECI Value.

Results

	CO_2 emissions	Energy consumption
Low carbon solution	552.9 t CO_2e/year	157.8 toe/year
Last tender or "worst case"	731.8 t CO_2e/year	208.6 toe/year
Annual savings	**178.9 t CO_2e/year**	**50.8 toe/year**
Total savings (50 years)	**8,944 t CO_2e**	**2,549 toe/year**

- The winner offered a bidding price of € 69,355,184.
- The winner offered to perform the work according to the fifth rung of the CO2 Performance Ladder, earning a five percent deduction * € 69,355,184 = € 3,467,759
- The winner offered an ECI Value of 2,720,000. This surpassed the minimum of 2,800,000 that was hoped for and ensured a maximum deduction of € 4,000,000.
- The final bidding price including fictional deductions due to the CO2 Performance Ladder and DuboCalc was:
- € 69,355,184 – € 3,467,759 - € 4,000,000 = € 61,887,425.
- Other MEAT criteria were valued and awarded much higher than sustainability (€ 22,130,000), so the total fictional bidding price that was compared with the other tenderers was € 61,887,425 - € 22,130,000 = € 39,757,425.
- This was the lowest price compared to the corrected bidding prices of other tenderers.
- Emissions Reduction of CO2e in this project
  - Beforehand the contracting authority makes a reference design and uses this to calculate an ECI Value. CO2e emissions is one of the (in total 11) parameters of the DuboCalc calculation that contributes to the ECI Value. The CO2e emissions are the amount that is emitted as a result of the processing of all building materials involved (production, transport, demolishing, re-use, et cetera) and the realization processes.
  - The amount of CO2e emissions that is reduced can easily be calculated by subtracting the ECI Value of the offered design from the reference design.
  - The CO2e emissions are an integral, proportional part of the ECI Value. It follows from the DuboCalc calculation that in this project 50.8% of the ECI Value is caused by the emissions of CO2e. The amount of CO2e emissions can now be calculated since 1 t CO2e emissions equals an ECI Value of 50.
  - The calculated ECI Value for the reference design is 3,600,000 for a design life time of 50 years. These are CO2e emissions of 36.589 tons in 50 years and an energy consumption of 10,428 toe in 50 years.
  - The winner offered in the tender an ECI Value of 2,720,000, which is 27,645 tons of CO2e emissions in 50 years and an energy consumption of 7,879 toe in 50 years.
  - The design offered by the bidder yielded 8,944 tons less emissions of CO2e in 50 years and an energy saving of 2,549 toe in 50 years.
  - The reduction in CO2e emissions of the construction is due to the material to be used in the top layer; the contractor applies material with a longer life time then was predicted in the reference design

Case Study Selection

Lessons learned

- The client must have a well-thought-out reference design and know where there is room for improvement in order to predict a maximum ECI Value.
- The bidders have the freedom to make their own choices since they are only be provided with functional requirements and technical framework conditions. The market appreciates this approach..
- Perhaps the results (and the amount of saved energy) would have been greater if the bar for sustainability had been placed higher and the criterion had been valued higher in terms of money, i.e. the minimum ECI Value could have been lower and the fictional prize deduction could have been higher. This assessment flows into the drafting of future tenders.

Contact

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Tender Index

More than 100 low carbon tender models were published over the course of the GPP 2020 project. The next few pages provide a taster of these case studies.

To access the full case study for each tender mentioned here, please click directly on the link or head over to our low carbon tender page to access any of the GPP 2020 tender models.

820 t CO_2 e | **234** toe

Construction of a low-carbon motorway exit
Rijkswaterstaat, the Netherlands

The tendering method aimed at reducing CO_2 emissions was successfully applied in a tender for an infrastructural work worth 5,000,000 EUR. Bidders were encouraged to offer a lean design and to apply innovative materials and working methods. Tendering followed the open procedure in combination with the most economical advantageous tender (MEAT approach).

Click here to download the full tender model

4,225 t CO_2 e | **1,573** toe

Energy efficiency and maintenance service
Catalan Institute of Oncology, Ministry of Health, Government of Catalonia

A 4 year energy performance contract (EPC) for the Catalan Ministry of Health with a minimum of 16% in energy cost reduction.

Click here to download the full tender model

9 t CO_2 e | **7** toe

Electronic invoice service
Oeste CIM, Portugal

Paperless invoice processing by the 12 municipalities associated to Oeste CIM. During the duration of the contract (3 years) savings of 8.7 t CO_2e, 7.3 toe and 9.4 t of paper.

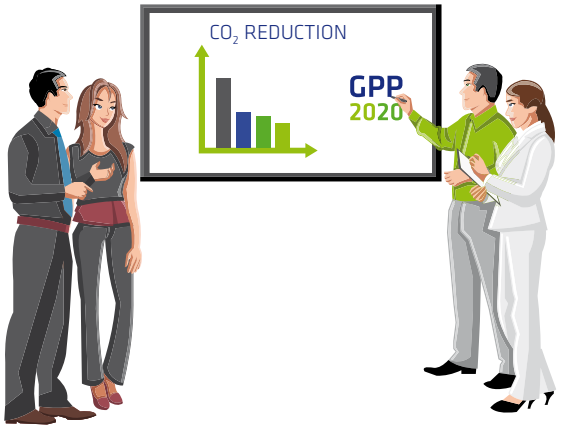
Click here to download the full tender model

548 t CO_2 e | **204** toe

Energy efficiency services for school buildings
Province of Barcelona, Ministry of Education

Energy efficiency services contract for the implementation of energy management measures in 12 secondary schools in Catalunya. The four year contract aims to reduce annual energy consumption between 13% and 18%.

Click here to download the full tender model



135 t CO_2 e | **43** toe

Energy Performance Contracting and maintenance service

Agrifood Laboratory of Cabrils. Ministry of Agriculture, Livestock, Fisheries, Food and Natural Environment. Government of Catalonia

The tender uses the Energy Performance Contracting (EPC) model, with guaranteed energy savings. A minimum of 10% in energy cost reduction and 5% in water cost reduction is mandatory. The contract runs over 5 years and has a value of 306,800 € (VAT excluded). Out of this amount 260,000 € correspond to the maintenance service and 46,800 € to the energy efficiency service.

Click here to download the full tender model

1,798 t CO_2 e | **555** toe

Framework agreement for video interpretation service

Federal Procurement Agency, Austria

Tender for video interpretation service. Within up to 2 minutes, the staff of hospitals, police, legal authorities, etc. can contact via internet an interpreter. The service works with different kinds of hardware like desktop computers, notebooks, tablet-computers or smartphones. The contract leads to energy savings of 554.8 toe including a significant reduction of the travel expenditure for interpreters.

Click here to download the full tender model

261 t CO_2 e | **42** toe

Energy renovation of the Ivan Glinšek kindergarten Maribor, Gledališka unit

Municipality of Maribor, Slovenia

This was an open tender related to the energy renovation of a kindergarten in the City of Maribor, Slovenia.The spoce of work included the improvement of the building envelope, the installation of more energy-efficient heating, ventilation and air conditioning system.

Click here to download the full tender model

1,650 t CO_2 e | **0** toe

Framework agreement of low-carbon parcel services for federal agencies and institutions

Procurement Agency of the Federal Ministry of the Interior of the Federal Republic of Germany

Contract for the CO_2- neutral parcel delivery for approximately 750 federal agencies and institutions. The concept was mainstreamed after a successful pilot phase.

Click here to download the full tender model

4,669 t CO_2 e | **798** toe

Framework agreement for printers for German federal agencies and institutions

Federal Procurement Office of the German Federal Ministry of the Interior

The tender was for a federal framework agreement for an estimated 33,800 printers with a budget of €20 million. The efficiency of the purchased printers is 40% higher than required by the Energy Star label. A calculation of the Total Cost of Ownership (TCO) was the main driver for efficiency.

Click here to download the full tender model

2,118 t CO_2 e | **320** toe

Framework contract for lighting equipment
Armed Forces (BAAINBW), Germany

This was a tender for framework contract for the purchase of individual consumption goods in the product group „illuminants“ by the Federal Office for equipment, information technology and utilization in the Bundeswehr.

Click here to download the full tender model

23,120 t CO_2 e | **0** toe

Heat supply with wood
Federal Procurement Agency, Austria

This contract resulted in very large CO_2-reductions (23,120 t CO_2) whic are equivalent to the annual average consumption of 4,000 EU households. This contract is also supporting independency from fossil fuels.

Click here to download the full tender model

19,303 t CO_2 e | **5,616** toe

Joint leasing of green vehicles
Consip SpA, Italy

€80 million framework contract for vehicle leasing. Car emissions had to be as low as 79 gCO_2/km for passenger cars and 134 gCO_2/km for heavy duty vehicles. A car sharing service and automated usage monitoring was implemented for fleet optimisation.

Click here to download the full tender model

5,162 t CO_2 e | **1,096** toe

Joint Procurement of energy efficient Desktop-PCs and Displays
Consip SpA, Italy

Framework contract for computers (Desktop-PCs and Displays) to ensure an efficiency performance that is 60% higher than the Computers produced according to the Energy Star Standard. The total lifetime electricity cost savings are € 2,300,000 for the whole contract. Specifications and award criteria disclose clearly the parameters on energy efficiency and reduced noise emissions.

Click here to download the full tender model

1,783 t CO_2 e | **239** toe

Joint procurement of energy efficient notebook computers in Italy
Consip SpA, Italy

A framework contract for the purchase of notebook computers procured laptops which were 60 percent more energy efficient than the Energy Star standard. Savings in electricity costs totalled €500,000 over the lifetime of the contract.

Click here to download the full tender model

205,747 t CO_2 e | **58,112** toe

Joint Procurement of Energy performance Contracting in the health sector
Consip SpA, Italy

This was a tender for a framework contract divided into 16 geographical lots, by the Italian Central Purchasing Agency (Consip SpA). The contract is an energy performance contract for the health sector.

Click here to download the full tender model

1,597 t CO_2 e | **696** toe

Lease to buy contract for low carbon emission cars

Ministry of Home Affairs, Catalan Government

Tender for cars by the Ministry of Home Affairs, Catalan Government, including vehicles for renewal and replacement of the fleet of the Directorate General of Police, the Directorate General of Fire Prevention, Fire Fighting and Rescue Services, the Directorate General of Civil Protection and the General Secretary's Office of the Ministry. Division in lots and sub-lots depending on the vehicle characteristics (fuel type, engine power, customization, etc.) and recipient agencies (in the different Catalan provinces).

Click here to download the full tender model

9,618 t CO_2 e | **2130** toe

Joint Procurement of Low-Carbon Business Travel Services

Consip SpA, Italy

Framework contract for Mobility Service (savings of CO_2, costs and travel downtimes), incl. CO_2 reporting, environmentally-friendly hotel solutions and video conference services. The tender uses the common environmental criteria developed by the Italian Ministry of Environment for vehicles and catering.

Click here to download the full tender model

2,973 t CO_2 e | **933** toe

Lease-Purchase of electric vehicles

HEP ltd., Croatian Energy Company, Croatia

Tender for a 60 months lease-purchase of 589 vehicles. 4 lots have been tendered: high class vehicles, middle class vehicles, low class vehicles and electric vehicles.

Click here to download the full tender model

22,085 t CO_2 e | **2,961** toe

Joint Procurement of resource-efficient print and copy management solutions

Consip SpA, Italy

The criteria require compliance with the last version of Energy Star and apply an innovative system based on service provision rather than buying printers. Advanced GPP criteria include training courses, compliance with hazardous substances and resource efficiency criteria.

Click here to download the full tender model

120 t CO_2 e | **31** toe

Lease-purchase of low-carbon cars

Ministry of Territory and Sustainability, Catalan Government

Tender for cars by the Ministry of Territory and Sustainability of Catalan Government. Overall 37 vehicles were purchased to renew the car fleet. The tender was subdivided into 3 Lots – Lot 1: 28 diesel cars; Lot 2: 6 hybrid cars and Lot 3: 3 electric cars. It was awarded as a 48 month lease-purchase contract, incl. repair and maintenance (possibility of 24 month extension) with a total cost of 943,008.00 € (excluding VAT). This tender forms part of the GPP implementation strategy of the Catalan Government, and contributes directly to the Government's Action plan for better air quality, Horizon 2015, and the Energy and Climate Plan 2012-2020. In sum CO_2 emissions were reduced by 21% and energy consumption by 17%.

Click here to download the full tender model

202 t CO_2 e | **63** toe

Lease of low-emission vehicles

Roads Directorate General, Government of Catalonia

This was an open tender for the contracts of different types of vehicles: large vans, small vans and off-road vehicles by the Roads Directorate General, Government of Catalonia.

Click here to download the full tender model

32 t CO_2 e | **9** toe

LED Lighting, Municipality of Tkon, Croatia

Municipality of Tkon, Croatia

This was an open tender asking for the replacement of the existing not efficient fixed outdoor street lighting in the Municipality of Tkon with new sustainable technology.

Click here to download the full tender model

693 t CO_2 e | **335** toe

Low carbon IT equipment for the city of Helsinki

Procurement centre, Helsinki

A framework contract for purchase and renewal of IT equipment used market engagement to achieve energy savings of 27% and cost savings of €72,000 over the lifetime of the products.

Click here to download the full tender model

1,150 t CO_2 e | **440** toe

Low carbon tender for energy audit services

Federal Procurement Agency, Austria

An energy audit was procured to calculate and reduce the energy consumption of public buildings, resulting in annual carbon savings equivalent to 23 tonnes.

Click here to download the full tender model

0.4 t CO_2 e | **0.1** toe

Low environmental impact printed materials

Metropolitan City of Rome, Italy

Tender for printed materials produced from recycled paper (chlorine free) or from virgin fiber with a „chain of custody" certification.

Click here to download the full tender model

1,096 t CO_2 e | **312** toe

Low-carbon infrastructure project 'Drongelens Kanaal'

Rijkswaterstaat, the Netherlands

Tender for the design and construction of a non-movable bridge, the renovation of the complete pavement of the adjacent road and the construction of a viaduct. Tendering parties were stimulated to offer a lean design and to apply innovative materials and working methods.

Click here to download the full tender model

8,944 t CO_2 e | **2,549** toe

Low-carbon reconstruction of the A12 motorway section Veenendaal-Ede-Grijsoord

Rijkswaterstaat, the Netherlands

A tendering method that aims to reduce CO_2e emissions was applied. Tendering parties were encouraged to offer a lean design and to apply innovative materials and working methods. Remarkable savings equivalent to the average annual CO_2e emissions of about 1,500 European households could be reached.

Click here to download the full tender model

340 t CO_2 e | **0** toe

Mixed contract for the installation, fuel supply and maintenance of a biomass furnace and other existing auxiliary systems

Town Council of Sant Julià de Vilatorta, Spain

The Town Council tendered a mixed construction and energy services contract that included the "installation, fuel supply and full maintenance service" of a heating and hot water network with a biomass furnace for the town sports pavilion and future installations. This measure contributed by 12% to fulfilling the Town Council's commitment to help fight climate change.

Click here to download the full tender model

11.2 t CO_2 e | **2.4** toe

Printing and supply of printed matter
Procurement Agency of the Federal Ministry of the Interior, Germany

The tender is for a framework contract on printing and supply of printed matter by the Procurement Agency of the Federal Ministry of the Interior, Germany.

Click here to download the full tender model

369 t CO_2 e | **63** toe

Purchase of an efficient commercial dishwasher
Procurement Agency of the Federal Ministry of the Interior, Germany

Open tender procedure using life time costing award criteria (operation efficiency) for one commercial dishwasher. Savings are achieved through reduced electricity use along with the reduction of (hot) water consumption.

Click here to download the full tender model

900 t CO_2 e | **257** toe

Procuring LED street lighting solutions
Municipality of Župa Dubrovačka, Croatia

Replacement of conventional lighting with energy efficient solutions. The tender encouraged the bidders to offer innovative materials and improved the local governments' social responsibility profile as well as their monitoring abilities.

Click here to download the full tender model

379 t CO_2 e | **99** toe

Purchase of electric vehicles
HEP ltd., Croatian Energy Company, Croatia

The purchase of 20 electric vehicles by the Croatian Energy Company ltd allowed for lower taxes, higher CO_2 savings and an improved CSR profile.

Click here to download the full tender model

2 t CO_2 e | **5** toe

Purchase of 100% recycled paper
Environmental protection and energy efficiency fund of the Republic of Croatia

Tender (2 lots) for 3,500 packages of A4 100% recycled paper and 60 packages of A3 100% recycled paper tendered by environmental and energy efficiency fund in the Republic of Croatia. The contract is for one year and is part of the GPP implementation policy of the Environmental protection and energy efficiency fund and contributes directly to the Government's National Energy Action plan (NEAP).

Click here to download the full tender model

45,536 t CO_2 e | **0** toe

Purchase of electricity from 100 % renewable energy sources
Municipality of Ljubljana, Slovenia

This joint green public procurement included 107 legal entities from the Municipality of Ljubljana, such as public companies, public institutions, health centres, theatres, libraries, elementary and music schools, kinder gardens.

Click here to download the full tender model

38 t CO_2 e

6 toe

Purchase of energy efficient IT and computing equipment

OesteCIM, Portugal

Tender for four lots of IT equipment (Lot 1: 265 desktop PCs; Lot 2: 265 monitors; Lot 3: 30 keyboards; Lot 4: 100 Uninterruptible Power Systems (UPS)). The tender required a minimum compliance with GPP criteria stricter than ENERGY STAR® and proved that the market can easily supply low-carbon IT equipment.

Click here to download the full tender model

42 t CO_2 e

10 toe

Purchase of energy efficient notebooks

Association of Municipalities and Towns of Slovenia

The contract covers 30 public contracting authorities which purchased 260 energy efficient notebooks. The association of Slovenian Municipalities and Towns entered into a 42 months general framework agreement. Individual contracting authorities establish individual framework agreements with all tenders that are part of the general framework agreement.

Click here to download the full tender model

124 t CO_2 e

66 toe

Purchase of energy efficient white and brown goods

Federal Procurement Agency Austria

Tender for 24-month framework contract with option of a 12-month extension. Divided into two lots (Lot 1: white goods; Lot 2: brown goods). The products offered in the tender are available to all customers of the Federal Procurement Agency. This comprises all ministries as well as cities, municipalities, universities, hospitals and outsourced companies owned by public authorities.

Click here to download the full tender model

63 t CO_2 e

17 toe

Purchase of fully electric vehicles

Barcelona Metropolitan Area

This was an open tender for the purchase of a minimum of 10 electric vehicles by the Barcelona Metropolitan Area.

Click here to download the full tender model

1581 t CO_2 e

493 toe

Purchase of low carbon vehicles by the Federal Procurement Agency in Austria

Federal procurement Agency

Maximum emission values for CO_2, CO, HC, NOx and PM in technical specifications and award criteria which encouraged lower CO_2 emissions led to 21% energy savings and a 21% reduction in CO_2 emissions. Federal Procurement Agency, Austria.

Click here to download the full tender model

10,620 t CO_2 e

2,236 toe

Purchase of Low Emission Buses

Ljubljana Public Transport

This was an open tender for 30 new buses for city public transport in Ljubljana, Slovenia. The bidders had to offer 30 new EURO VI standard buses.

Click here to download the full tender model

3,345 t CO_2 e | **1044** ,toe

Purchase of Low Emission Buses
Municipality of Maribor, Slovenia

Tender for the purchase of low emission buses, all of which attained a minimum EURO VI standard. The tender resulted in a reduction of more than 50% carbon dioxide emissions.

Click here to download the full tender model

29 t CO_2 e | **5052** ,toe

Purchase of thin client computer systems and connected services
Procurement Agency of the Federal Ministry of the Interior (Beschaffungsamt), Germany

Tender for thin clients tendered by the Procurement Agency of the Federal Ministry of the Interior, Germany (Beschaffungsamt). It was a Framework contract for about 50,000 thin client computer systems (30,000 smart-thin-clients and 20,000 full-thin-clients) and connected services to replace old and inefficient desktop PCs in several federal government agencies. The tender was published in August 2013. The 4 months purchase contract (framework contract) included the possibility for extension twice for 12 months. The total cost was 15,000,000.00 € (excluding VAT).

Click here to download the full tender model

2.5 t CO_2 e | **0.34** toe

Purchase of Thin Client Systems
Oeste CIM, Portugal

Tender for the purchase of thin client systems composed by 25 terminals and 1 server to supply Oeste CIM. If this technology proves to be efficient, a new procedure will be published to supply the 12 municipalities associated to OesteCim. Energy savings of 35,6% compared with the standard product/previous tender.

Click here to download the full tender model

108 t CO_2 e | **33** toe

Purchasing energy efficient laptops
Federal Procurement Agency, Austria

This was an open tender for the purchase of energy efficient laptops by Federal Procurement Agency, Austria. During the 3 years of the framework contract the procuring authority is planning to procure 48,300 laptops. The tender requirements include not only environmental but also social criteria.

Click here to download the full tender model

88 t CO_2 e | **38** toe

Rental and purchase of electric vehicles
OesteCIM, Portugal

Tender for the long term rental and subsequent purchase of electric vehicles by the municipalities of OesteCIM. 12 electric vehicles of L7e class were purchased for urban travel in substitution of old diesel vehicles. The total cost were 74 800 € (excluding VAT).

Click here to download the full tender model

29 t CO_2 e | **0** toe

Rental and purchase of photovoltaic charging stations for electric vehicles
OesteCIM, Portugal

This tender for photovoltaic charging stations uses local energy production to charge electric Vehicles. 38% of the energy needed is produced by the charging stations.

Click here to download the full tender model

0.6 t CO_2 e | **0.1** toe

Rental of energy efficient imaging equipment

Oeste CIM, Portugal

Public tender for the rental of imaging equipment to be used in the offices of OesteCIM, including consumables and maintenance of equipment. During the duration of the contract (3 years) savings of 1,092 kWh of used energy, 0.6 t CO_2e and 0.1 toe of used energy will be achieved.

Click here to download the full tender model

48 t CO_2 e | **8** toe

Rental of low-carbon multifunction devices (MFD)

Municipality of Loures, Portugal

This was an open tender for renting of imaging equipment (MFD and printers) to be used in Loures Municipality services and municipal schools, including technical assistance, consumables and maintenance.

Click here to download the full tender model

88 t CO_2 e | **24** toe

Renting of electric scooters for Barcelona City Police

Barcelona City Council, Department of Logistics and Infrastructures

Tender for the renting of 30 electric scooters for the Barcelona City Police (Department of Logistics and Infrastructures at the Barcelona City Council Prevention, Security and Mobility Division). The overall tender budget is € 486,720.00 (VAT excluded).

Click here to download the full tender model

10 t CO_2 e | **3** toe

Replacement and maintenance of multifunction devices (MFD)

Barcelona Metropolitan Area, Spain

Tender for the supply of imaging equipment to the Barcelona Metropolitan Area (AMB). The contract covers the replacement and maintenance of 24 multifunctional devices (MFD).

Click here to download the full tender model

460 t CO_2 e | **115** toe

Supply and maintenance of energy efficient copiers and multifunctional devices (copier, fax, printer, scanner)

Republic of Slovenia, Ministry of Finance

Three year framework agreement for the supply and maintenance of energy efficient copiers and multifunction devices (copier, fax, printer, scanner). The contract covers 52 contracting authorities which have received more than 230 energy efficient solutions.

Click here to download the full tender model

4,580 t CO_2 e | **1,305** toe

Sustainable Reconstruction of the Guard Lock near Limmel

Rijkswaterstaat, the Netherlands

The contract is a design, build, maintain and finance (DBFM) contract tendered by Rijkswaterstaat. The contract includes the reconstruction of a guard lock in the river Meuse in the municipality of Limmel. The procurement approach taken fostered the uptake of innovative materials and working methods.

Click here to download the full tender model

214 t CO_2 e | **0** toe

Supply of electricity from renewable energy sources

Student Centre of the University and the Polytechnic College Rijeka, Croatia

Contract for the supply of 30% of electricity derived from renewable energy sources. The tender encouraged bidders to offer electricity derived from renewable energy sources. The contract has an estimated value of 133.000 € (excluding VAT).

Click here to download the full tender model

35 t CO_2 e | **9** toe

Supply and maintenance of energy efficient copiers and multifunctional devices (copier, fax, printer, scanner) – part 2

Republic of Slovenia, Ministry of Finance

In a previous tender for MFDs certain lots could not be awarded. These were re-opened and the below tender model describes the procedure and results. The contract covers 52 contracting authorities and replaces 196 units with energy efficient solutions.

Click here to download the full tender model

126,230 t CO_2 e | **0** toe

Supply of electricity from renewable sources

Central Procurement Office, Croatia

This was an open tender for the electricity supply of all state bodies in Croatia, with at least 50% electricity from renewable resources.

Click here to download the full tender model

66,701 t CO_2 e | **0** toe

Supply of electricity from renewable and high efficiency cogeneration sources

Department of Economy and Knowledge, Government of Catalonia

Framework agreement for the supply of energy (electricity and gas) in the property of the departments of the Administration of the Government of Catalonia and of the bodies associated to the central purchasing system of the Central Supplies Committee of the Department of Economy and Knowledge. Division in lots: 7 for the supply of electricity, in which environmental criteria have been applied, and 3 for the supply of natural gas, liquefied natural gas and propane gas.

Click here to download the full tender model

16 t CO_2 e | **0** toe

Supply of electricity from renewable sources

Metropolitan City of Rome Capital, Italy

This was a open tender for the purchase of electricity from renewable sources for fish incubator utilities of the Metropolitan City of Rome Capital. The percentage of green electricity with guarantees of origin is 100%.

Click here to download the full tender model

80 t CO_2 e | 0 toe

Supply of electricity from renewable sources
Municipality of Župa Dubrovačka, Croatia

The share of renewable energy was increased from 0% to 20%. The tender successfully encouraged bidders to offer electricity derived from renewable energy sources, taking into account the particular circumstances in Croatia related to the electricity market.

Click here to download the full tender model

15,277 t CO_2 e | 0 toe

Supply of electricity from renewable sources or high efficiency cogeneration
Republic of Slovenia, Ministry of Finance

Four year framework contract for the supply of electricity, principally from renewable energy sources or high efficiency cogeneration plants. 80% of electricity derives from renewable energy sources or high efficiency cogeneration.The contract covers 210 contracting authorities and 2,918 individual sites.

Click here to download the full tender model

73 t CO_2 e | 20 toe

Supply of energy efficient IT equipment
University of Split – University Department of Professional Studies, Croatia

A 24 month contract for 260 pieces of IT equipment including desktop computers, laptops and monitors for the University of Split. The total cost was 100.000,00 € (excluding VAT). This tender is part of the commitment and contribution of the University to reduce carbon dioxide emissions and increase energy efficiency to thus reduce the adverse impact of climate changes.

Click here to download the full tender model

164 t CO_2 e | 41 toe

Supply of energy efficient notebooks
Republic of Slovenia, Ministry of Finance

Three year framework agreement for the supply of energy efficient notebooks. The contract covers 49 contracting authorities and supplies them with over 3,650 energy efficient notebook solutions.

Click here to download the full tender model

11 t CO_2 e | 3 toe

Supply of energy efficient notebooks (part 2)
Republic of Slovenia, Ministry of Finance

In a previous tender for notebooks certain lots could not be awarded. These were re-opened and the below tender model describes the procedure and results. The contract covers 49 contracting authorities and replaces 200 units with energy efficient solutions.

Click here to download the full tender model

551 t CO_2 e | 138 toe

Supply of energy efficient printers
Republic of Slovenia, Ministry of Finance

Three year framework agreement for the supply of energy efficient printers.Common public tender, published by the Public Procurement Directorate of the Ministry of Finance, Slovenia, in October 2013. The contract covers 49 contracting authorities, supplying them with more than 3,600 energy efficient printers.

Click here to download the full tender model

2.3 t CO_2 e | **0.5** toe

Supply of hygiene products
Metropolitan City of Rome Capital, Italy

The tender has been realized through the "Electronic Market of the Public Administration" by the Metropolitan City of Rome Capital for the purchase of hygiene products.

Click here to download the full tender model

811 t CO_2 e | **252** toe

Supply of luxury class cars and electric cars
Federal Procurement Agency, Austria

This was a framework agreement for the supply of luxury class cars and electric cars by the Federal Procurement Agency (FPA), Austria. The tender was not divided into lots: The bidders had to offer luxury class cars as well as electric cars.

Click here to download the full tender model

0.35 t CO_2 e | **0.1** toe

Supply of recycled cartridges for printers, PC, copiers and fax
Metropolitan City of Rome Capital, Italy

The tender has been realized through the "Electronic Market of the Public Administration" by the Metropolitan City of Rome Capital for the purchase of different cartridges in 2 lots.

Click here to download the full tender model

75,166 t CO_2 e | **0** toe

Supplying electricity guaranteed to come from renewable energy sources and from high-efficiency cogeneration
Department of Resources, Barcelona City Council

Coinciding with the period for renewing the electricity contract currently in force, the City Council's Department of Resources decided to consult with the company involved in the Framework Agreement inquire if 100% electricity from green sources, both in the extension of the contract and in future bids was possible. This additional cost was estimated at 0.5 cents per kWh consumed. In other words, no more than an additional 0.3% on the cost of the tendered contract.

Click here to download the full tender model

4,580 t CO_2 e | **1,305** toe

Sustainable Reconstruction of the Guard Lock near Limmel
Rijkswaterstaat, the Netherlands

The contract is a design, build, maintain and finance (DBFM) contract tendered by Rijkswaterstaat. The contract includes the reconstruction of a guard lock in the river Meuse in the municipality of Limmel. The procurement approach taken fostered the uptake of innovative materials and working methods.

Click here to download the full tender model

88,639 t CO_2 e | **25,262** toe

Sustainable Construction of the Sea Entrance Ijmuiden
Rijkswaterstaat, the Netherlands

The contract is a Design, Build, Maintain and Finance contract for the construction of see entrance in Ijmuiden. The tender was prepared and executed under the leadership of Rijkswaterstaat.

Click here to download the full tender model

1.2 t CO_2 e | **0.26** toe

Acquisition of energy efficient IT equipment
Region Sicily, Italy

This was a tender for the acquisition of low energy consumption IT equipment by the Region sicily. The acquisition has been realized via the "Electronic market for public administration" (MePa).

Click here to download the full tender model

0.3 t CO_2 e | **0.06** toe

Acquisition of low energy consumption personal computers
City of San Giuseppe Vesuviano, Italy

This was a tender for acquisition of low energy consumption desktop computers and laptops by the City of San Giuseppe Vesuviano, Italy.

Click here to download the full tender model

210 t CO_2 e | **53** toe

Acquisition of paper reams
Autonomous Province of Bolzano Alto Adige

This was an open tender for is the acquisition of paper reams for the needs of the member Administrations of the Province Bolzano Alto Adige.

Click here to download the full tender model

0.2 t CO_2 e | **0.1** toe

Agency Leasing of an Electric Car for the Agency Fleet
Procurement Office of the German Federal Ministry of the Interior, Germany

This was a tender for the leasing of an E-Car by the German Federal Ministry of Interior. The tender was carried out in accordance with the National Sustainability Strategy and the Government's Sustainability Action Plan.

Click here to download the full tender model

23,200 t CO_2 e | **6,612** toe

Construction of the Third Chamber at the Beatrix Locks
Rijkswaterstaat, the Netherlands

The contract is a Design, Build, Maintain and Finance contract for the construction of Third Chamber Beatrix Locks. The tender was prepared and executed under the leadership of Rijkswaterstaat.

Click here to download the full tender model

5,096 t CO_2 e | **1,262** toe

Contracting Medical Transport (MT) Services in Catalonia
Catalan Health Service, Government of Catalonia

This was an open tender divided into 13 lots, by the Catalan Health Service (Government of Catalonia) for the management of health transportation services in Catalonia for urgent medical transport and non-urgent medical transport.

Click here to download the full tender model

999 t CO_2 e | **307** toe

Desktop-PCs

Federal Procurement Agency, Austria

This was an open tender for desktop PCs (about 55.400 PCs) by Federal Procurement Agency, Austria. One of the technical requirement was that the CPU should contain conflict-free minerals.

Click here to download the full tender model

4,917 t CO_2 e | **0** toe

Electricity from renewable sources or high efficiency cogeneration – part 2 (reopening of the competition)

Republic of Slovenia, Ministry of Public Administration

This was an open tender for the supply of electricity, principally from renewable energy sources or high efficiency cogeneration plants by the Republic of Slovenia, Ministry of Public Administration.

Click here to download the full tender model

1,221 t CO_2 e | **310** toe

Energy efficient building reconstruction

National Park Risnjak, Croatia

This was a tender for energy efficient building reconstruction comprising of replacement of the heating and hot water system and the improvement of the thermal insulation (outer shell and windows) by the National Park Risnjak.

Click here to download the full tender model

283 t CO_2 e | **97** toe

Energy efficient building reconstruction, Nature Park Papuk, Croatia

Nature Park Papuk, Croatia

This was an open tender for an energy efficient building reconstruction comprising a replacement of the heating and hot water system and the improvement of the thermal insulation (outer shell and windows).

Click here to download the full tender model

135 t CO_2 e | **43** toe

Energy Performance Contracting and maintenance service

Agrifood Laboratory of Cabrils. Ministry of Agriculture, Livestock, Fisheries, Food and Natural Environment. Government of Catalonia

The tender uses the Energy Performance Contracting (EPC) model, with guaranteed energy savings. A minimum of 10% in energy cost reduction and 5% in water cost reduction is mandatory. The contract runs over 5 years and has a value of 306,800 € (VAT excluded). Out of this amount 260,000 € correspond to the maintenance service and 46,800 € to the energy efficiency service.

Click here to download the full tender model

2,616 t CO_2 e | **787** toe

Energy Performance Contracting and maintenance service

Ministry of Culture. Government of Catalonia

This was an open tender using Energy Performance Contracting model for energy efficiency and maintenance services by the Ministry of Culture of the Government of Catalonia.

Click here to download the full tender model

55 t CO_2 e | **12** toe

Making sewage systems more sustainable

Municipality of Eindhoven

This was a tender for the disconnection of sewage system in combination with the refurbishment and greening of a parking area by the Municipality of Eindhoven, The Netherlands.

Click here to download the full tender model

66 t CO_2 e | **19** toe

LED Lighting

Municipality of Župa Dubrovačka, Croatia

This was a tender for a fixed public street lighting installation intended to provide good visibility to users of outdoor public traffic areas during the hours of darkness to support traffic safety, traffic flow and public security.

Click here to download the full tender model

112 t CO_2 e | **25** toe

Park & Ride Area

Municipality of Nijmegen, The Netherlands

This was a tender to the pavement for 300 parking spaces by the Municipality of Nijmegen, The Netherlands. The tender was based on the Directive 'Building projects with sustainable concrete'. Minimum level that has to be offered in terms of reuse and CO2e reduction is level D.

Click here to download the full tender model

7 t CO_2 e | **14** toe

Low environmental impact road maintenance

Metropolitan City of Rome Capital, Italy

This was a simplified restricted procedure for road maintenance works by the Metropolitan City of Rome Capital. The Special Tender Specifications for the road maintenance works envisaged many conventional processes but also a process that permitted a CO2 saving. The tender has been divided into 3 lots.

Click here to download the full tender model

1.6 t CO_2 e | **0.4** toe

Procurement for the production and supply of printed materials

Procurement Agency of the Federal Ministry of the Interior, Germany

This was an open tender for the production and supply of printed materials by the Procurement Agency of the Federal Ministry of the Interior, Germany. the tender is available in German only.

Click here to download the full tender model

2,693 t CO_2 e | **460** toe

Procurement of monitors and related equipment

Procurement Office of the German Federal Ministry of the Interior, Germany

This was an open tender for a framework contract for the procurement of monitors and related equipment, by the German Federal Ministry of Interior. The tender is available in German only.

Click here to download the full tender model

252 t CO_2 e | **79** toe

Purchase of low emission bus

Municipality of Alcobaça, Portugal

This was an open tender for purchase of one bus by Municipality of Alcobaça. Minimum technical specifications were set, including engine, passenger capacity, etc. Apart from these, the following low carbon criteria were defined.

Click here to download the full tender model

9.3 t CO_2 e | **2.9** toe

Purchase of an Emergency Electricity Supply for Civil Protection

Procurement Agency of the Federal Ministry of the Interior, Germany

This was a tender for stationary emergency electricity supply to replace an old device, by the Procurement Agency of the Federal Ministry of the Interior, Germany.

Click here to download the full tender model

1,664 t CO_2 e | **519** toe

Purchase of Low Emission Buses for Municipal Public Transport

Municipality of Maribor, Slovenia

This was an open tender for the purchase for the purchase of 5 buses emission standard EURO VI, published by the Municipality of Maribor, Slovenia.

Click here to download the full tender model

728 t CO_2 e | **255** toe

Purchase of environmentally friendly vehicles

Republic of Slovenia, Ministry of Public Administration

This was an open tender for 133 vehicles (in 12 lots) by the Slovenian Ministry of Public Administration for 27 public authorities.

Click here to download the full tender model

338 t CO_2 e | **831** toe

Purchase of low emission CNG minibuses for city transport

Zagreb Holding, Croatia

This was an open tender for 16 CNG minibuses by Zagreb Holding, Croatia.

Click here to download the full tender model

4,406 t CO_2 e | **1,535** toe

Purchase of organic dairy products
Federal Procurement Agency, Austria

This was an open tender for dairy products (milk, butter, yoghurt, etc.) by the Federal Procurement Agency (FPA), Austria. The tender consisted of 8 regional lots.

Click here to download the full tender model

446 t CO_2 e | **155** toe

Purchase of organic fresh poultry meat
Federal Procurement Agency, Austria

This was an open tender for fresh poultry meat (chicken and turkey) by the Federal Procurement Agency (FPA), Austria. The tender consisted of seven regional lots.

Click here to download the full tender model

57 t CO_2 e | **26** toe

Purchase of recycled LDPE bags
Environmental protection and energy efficiency fund, Croatia

This was a tender for recycled LDPE bags made of recycled material purchased in order to environment protection improvement especially CO2 savings and clean air promotion by using sustainable technology solutions by the EE Fund in Croatia.

Click here to download the full tender model

29,500 t CO_2 e | **5,502** toe

Purchase of thin client computer systems and connected services
Procurement Agency of the Federal Ministry of the Interior (Beschaffungsamt), Germany

Tender for thin clients tendered by the Procurement Agency of the Federal Ministry of the Interior, Germany (Beschaffungsamt). It was a Framework contract for about 50,000 thin client computer systems (30,000 smart-thin-clients and 20,000 full-thin-clients) and connected services to replace old and inefficient desktop PCs in several federal government agencies. The tender was published in August 2013. The 4 months purchase contract (framework contract) included the possibility for extension twice for 12 months. The total cost was 15,000,000.00 € (excluding VAT).

Click here to download the full tender model

126 t CO_2 e | **43** toe

Purchase of vehicles
Zagreb Holding, Croatia

This was an open tender for the purchase of 8 vehicles purchased to renew the car fleet with energy efficient vehicles in order to improve the environment protection, especially CO2 savings and clean air promotion by using sustainable technology solutions.

Click here to download the full tender model

52,800 t CO_2 e | **15,048** toe

Reconstruction Motorway A6 Almere
Rijkswaterstaat, the Netherlands

The contract is a Design, Build, Maintain and Finance contract DBFM. The tender was prepared and executed under the leadership of Rijkswaterstaat.

Click here to download the full tender model

475 t CO_2 e | **106** toe

Renovation of a cycle path in Apeldoorn
Municipality of Apeldoorn

This was a tender to renovate a 9.3 KM cycle path in a sustainable way Municipality of Apeldoorn, The Netherlands.Apeldoorn used the 'EMVI' Economic Most Valuable Offer' method that was developed by PIANOo.

Click here to download the full tender model

50 t CO_2 e | **11** toe

Renting of a full service digital multifunctional equipment
Autonomous Province of Bolzano Alto Adige

This was a tender for the renting of 140 laser color multifunction devices with the purpose to replace the existent printers/photocopiers/scanners with shared multifunction devices connected to the Print Management central system by the Autonomous Province of Bolzano Alto Adige.

Click here to download the full tender model

4,680 t CO_2 e | **1,230** toe

Renovation of the ex INPS building
State Property Office, Region Liguria

This was an open procedure based on the criteria of economically most advantageous tender for the sustainable renovation of a building by the State Property Office, Region Liguria.

Click here to download the full tender model

4,823 t CO_2 e | **1,141** toe

Reuse of IT-appliances
Federal Procurement Agency, Austria

This was a contract for the Service of the recovery of old IT-appliances by the Federal Procurement Agency, Austria. The recovery includes the collection, the certified data deletion, the cleaning, the processing and the sale with profit share or the disposal of the IT hardware.

Click here to download the full tender model

1.9 t CO_2 e | **0.3** toe

Rental of low-carbon multifunction devices (MFD)
LIPOR, Portugal

This was a tender for renting of imaging equipment (MFD and printers) to be used in LIPOR's premises, including technical assistance and maintenance, when they used LCC calculation.

Click here to download the full tender model

129 t CO_2 e | **17** toe

Service for the management of the printing system
Region Veneto, Italy

This was an open tender for an "all included" service consisting of the rental of 500 multifunctional devices that need to be installed at the headquarters of Veneto Region, accompanied by an adequate hardware and software system for the network management.

Click here to download the full tender model

488 t CO_2 e | **0** toe

Supply of electricity from 100% renewable sources

LIPOR, Portugal

This was an open tender for the supply of electricity from 100% renewable sources in medium voltage, using the framework agreement for the supply of electricity of ESPAP (Portuguese central procurement body).

Click here to download the full tender model

811 t CO_2 e | **252** toe

Supply of luxury class cars and electric cars

Federal Procurement Agency, Austria

This was a framework agreement for the supply of luxury class cars and electric cars by the Federal Procurement Agency (FPA), Austria. The tender was not divided into lots: The bidders had to offer luxury class cars as well as electric cars.

Click here to download the full tender model

3,758 t CO_2 e | **0** toe

Supply of electricity from renewable sources

OesteCim, Portugal

This was a tender for framework agreement for electricity supply that could be used by the 12 associated municipalities, by the OesteCim, Portugal.

Click here to download the full tender model

108 t CO_2 e | **555** toe

Supply of solar protection mechanisms

Metropolitan City of Rome Capital, Italy

This was an open tender for the purchase of indoor roller curtains by the Metropolitan City of Rome Capital. The purchase was realized through an agreement with CONSIP within the category "Furniture and complementary furnishings" and divided into 6 lots.

Click here to download the full tender model

75,166 t CO_2 e | **0** toe

Supplying electricity guaranteed to come from renewable energy sources and from high-efficiency cogeneration

Department of Resources, Barcelona City Council

Coinciding with the period for renewing the electricity contract currently in force, the City Council's Department of Resources decided to consult with the company involved in the Framework Agreement inquire if 100% electricity from green sources, both in the extension of the contract and in future bids was possible. This additional cost was estimated at 0.5 cents per kWh consumed. In other words, no more than an additional 0.3% on the cost of the tendered contract.

Click here to download the full tender model

214 t CO_2 e | **67** toe

Purchase of Portable Lighting Masts with LED Lights

Procurement Office of the German Federal Ministry of the Interior, Germany

This was an open tender for twenty portable light masts by the Procurement Office of the German Federal Ministry of the Interior, Germany . Ten devices were ordered immediately with the option of a further ten.

Click here to download the full tender model

13 t CO_2 e | **3.7** toe

Supply of energy efficient IT equipment

Environmental protection and energy efficiency fund, Croatia

This was a tender for energy efficient IT equipment (160 pieces of IT equipment included: 80 desktop computers and 80 monitors) tendered by the Environmental protection and energy efficiency fund.

Click here to download the full tender model

2,699 t CO_2 e | **0** toe

Supply of electricity from renewable sources

Cascais, Portugal

This was a tender for electricity supply of municipal premises and schools in two lots, by the Cascais, Portugal.

Click here to download the full tender model

36 t CO_2 e | **6.2** toe

Procurement of commercial dishwashers

Procurement Agency of the Federal Ministry of the Interior, Germany

This was an open tender for the procurement of commercial dishwashers by the German Federal Ministry of Interior. The tender was carried out by applying LCC calculation methodology. The tender is available only in German.

Click here to download the full tender model

0.35 t CO_2 e | **0.1** toe

Supply of recycled cartridges for printers, PC, copiers and fax

Metropolitan City of Rome Capital, Italy

The tender has been realized through the "Electronic Market of the Public Administration" by the Metropolitan City of Rome Capital for the purchase of different cartridges in 2 lots.

Click here to download the full tender model

11,058 t CO_2 e | **337** toe

Mainstreaming low carbon tenders across Europe

GPP 2020 project

Aggregated results from GPP 2020 national support partners and purchasing bodies from across Europe. From frost-free bicycle paths construction to desktop PCs - GPP 2020 worked with many partners on greening tenders across Europe. This overview table provides all-in-one data on those additional GPP 2020 tenders.

Click here to download the full list.

GPP 2020: Looking to the future

In order to ensure that the lessons learnt from the GPP 2020 project extend well into the future, GPP 2020 partners have been putting tender implementation plans for the next two years.

These plans show the low carbon tenders they hope to implement in this time and the savings they expect to make. In total, the savings foreseen in the tender implementation plans amount to more than 650,000 t CO_2 savings over the next 3 years with close to 7 Billion EUR spend.

Whilst these plans are only provisory, they provide a clear indicator of the project consortium's commitment to low carbon procurement p and form a good basis for ensuring the legacy of GPP 2020 well beyond the project's lifetime.

To view the tender implementation plans, head over to the GPP 2020 website.

More information and contact

The GPP 2020 project was coordinated by ICLEI – Local Governments for Sustainability.

For more information on this project and other initiatives related to low carbon procurement, contact **procurement@iclei.org**.

Project partners

Co-funded by the Intelligent Energy Europe Programme of the European Union

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